

CLAIMS

What Is Claimed Is:

1. A gas analysis apparatus for analyzing samples of  
5 breathing air substances and determining if said substances pass  
gas purity standards for certification of gas sample quality by a  
qualified third party other than the user, the apparatus  
comprising:

10 a gas analysis module situated at a user facility for  
receiving the contents of a gas sample, for detecting gas purity  
characteristics and for converting said gas purity characteristics  
into computer-readable data;

15 a server maintained by a qualified third party situated at a  
remote site and electrically coupled to said gas analysis module,  
said server including a data receiver of computer-readable data  
related to said gas purity characteristics;

means for transmitting said data;

20 said server including a means for storing said computer-  
readable data related to said gas purity characteristics; and

means for determining if said gas sample passes certain gas  
25 purity requirements for certification by said third party.

2. The portable gas analysis apparatus of claim 1 wherein  
said means for transmitting includes connection over a computer  
network.

3. The gas analysis apparatus of claim 1 wherein said data transmission is via a wireless transmission.

5       4. The gas analysis apparatus of claim 1 further comprising means for informing a user if said gas sample has passed said gas purity requirements.

10      5. The gas analysis apparatus of claim 4 wherein said means for informing said user if said gas sample has passed said gas purity requirements comprises an electronic message.

15      6. The gas analysis apparatus of claim 4 wherein said means for informing said user if said gas sample has passed said gas purity requirements comprises a printed message.

20      7. The gas analysis apparatus of claim 1 wherein said remote site is an accredited gas purity testing facility.

25      8. The gas analysis apparatus of claim 1 further comprising means for storing and printing results of said gas sample analysis.

9. The gas analysis apparatus of claim 1 wherein said portable gas analysis module comprises:

means for collecting and temporarily storing the gas sample;  
means for detecting gas impurities in said gas sample; and  
data processing means for converting said detected gas  
impurity data into computer readable data, said computer readable  
5 data representing gas impurity characteristics of said gas sample.

10. The gas analysis apparatus of claim 1 further comprising means for determining whether said gas sample contains oil particle impurities.

11. The gas analysis apparatus of claim 1 wherein said means for determining if said gas sample passes certain gas purity requirements comprises means for comparing said computer-readable data related to said gas purity characteristics to a stored set of pre-determined gas purity standards.

12. A method of analyzing a gas sample without the necessity of transporting the gas sample to a remote qualified third party testing facility and determining if said substances  
20 pass gas purity standards, the method comprising the steps of:  
receiving a gas sample within a gas analysis module situated at a user facility;  
determining gas purity characteristics of said gas sample;  
converting said gas purity characteristics into computer  
25 readable data; and

transmitting said computer readable data representing said gas purity characteristics from said user facility to a **qualified** server situated at a remote site and electrically coupled to said gas analysis module, said server including a receiver for receiving said computer readable data via a data transmitter, said server containing a data storage element for storing said computer readable data; and

determining if said gas sample passes certain gas purity requirements.

13. The method of claim 12 wherein said data transmission is via a computer network.

14. The method of claim 12 wherein said data transmission is via a wireless transmission.

15. The method of claim 12 wherein further comprising the step of informing a user if said gas sample has passed said gas purity requirements.

16. The method of claim 12 wherein said step of informing the user if said gas sample has passed said gas purity requirements comprises an electronic message.

25 17. The method of claim 12 wherein said step of informing

the user if said gas sample has passed said gas purity requirements comprises a printed message.

18. The method of claim 12 wherein said remote site is an  
5 accredited gas purity testing facility.

19. The method of claim 12 further comprising the steps of storing and printing results of said gas sample analysis.

10 20. The method of claim 12 wherein said means for determining if said gas sample passes certain gas purity requirements comprises the step of comparing said computer-readable data related to said gas purity characteristics to a stored set of pre-determined gas purity standards.